

1 CLAIMS

- 2 1. An apparatus comprising:
3 a first device;
4 a first connector coupled to the first device;
5 a second connector coupled to the first connector through a first plurality of
6 conductors, wherein alternating pairs of conductors are reversed; and
7 a second device coupled to the second connector through a second plurality
8 of conductors.
- 9
- 10 2. An apparatus as recited in claim 1 wherein the first device includes a
11 plurality of differential drivers.
- 12
- 13 3. An apparatus as recited in claim 1 wherein the second device includes
14 a plurality of differential receivers.
- 15
- 16 4. An apparatus as recited in claim 1 wherein the first device is an
17 integrated circuit.
- 18
- 19 5. An apparatus as recited in claim 1 wherein the first device is an
20 integrated circuit disposed on a substrate, wherein the substrate is electrically
21 coupled to the integrated circuit and the first connector.
- 22
- 23 6. An apparatus as recited in claim 1 wherein the second device is an
24 integrated circuit.
- 25

1 7. An apparatus as recited in claim 1 wherein the first device has an
2 inductive coupling coefficient substantially the same as the inductive coupling
3 coefficient of the second device.

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5 8. An apparatus as recited in claim 1 wherein the alternating pairs of
6 conductors are reversed once between the first connector and the second
7 connector.

8

9 9. An apparatus as recited in claim 1 wherein alternating pairs of
10 conductors in the second plurality of conductors are reversed.

11

12 10. An apparatus comprising:
13 a first integrated circuit including a plurality of differential drivers;
14 a first connector coupled to the first integrated circuit;
15 a second connector coupled to the first connector through a plurality of
16 electrical conductors, wherein alternating pairs of the electrical conductors are
17 reversed; and
18 a second integrated circuit coupled to the second connector, wherein the
19 second integrated circuit includes a plurality of differential receivers.

20

21 11. An apparatus as recited in claim 10 further comprising a second
22 plurality of electrical conductors coupled between the second connector and the
23 second integrated circuit, wherein alternating pairs of the second plurality of
24 electrical conductors are reversed.

1 **12.** An apparatus as recited in claim 10 further comprising a second
2 plurality of electrical conductors coupled between the second connector and the
3 second integrated circuit, wherein each pair of conductors includes an inverted
4 conductor and a non-inverted conductor, each inverted conductor coupled to a
5 non-inverted input of one of the differential receivers, and each non-inverted
6 conductor coupled to an inverted input of one of the differential receivers.
7

8 **13.** An apparatus as recited in claim 10 wherein the first integrated
9 circuit has an inductive coupling coefficient substantially the same as the inductive
10 coupling coefficient of the second integrated circuit.
11

12 **14.** An apparatus as recited in claim 10 wherein the alternating pairs of
13 electrical conductors are reversed once between the first connector and the second
14 connector.
15

16 **15.** An apparatus comprising:
17 a printed circuit board;
18 a plurality of connectors disposed on the printed circuit board;
19 a first integrated circuit disposed on a first substrate, wherein the first
20 substrate is configured to be coupled to one of the plurality of connectors;
21 a second integrated circuit disposed on a second substrate, wherein the second
22 substrate is configured to be coupled to one of the plurality of connectors;
23 and
24
25

1 a first plurality of electrical conductors coupled to the plurality of
2 connectors, wherein alternating pairs of conductors between adjacent connectors
3 have reversed polarity.

4

5 **16.** An apparatus as recited in claim 15 wherein the printed circuit board
6 is a backplane.

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8 **17.** An apparatus as recited in claim 15 further comprising a second
9 plurality of conductors coupled between the first integrated circuit and one of the
10 plurality of connectors, wherein alternating pairs of conductors have reversed
11 polarity.

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13 **18.** An apparatus as recited in claim 15 wherein the first substrate is a
14 printed circuit board.

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16 **19.** An apparatus as recited in claim 15 wherein the first substrate is a
17 memory module.

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19 **20.** An apparatus as recited in claim 15 wherein the first integrated
20 circuit is a memory device.

21

22 **21.** An apparatus as recited in claim 15 wherein the first integrated
23 circuit has an inductive coupling substantially the same as the inductive coupling
24 of the second integrated circuit.

1 **22.** An apparatus comprising:

2 a first device; and

3 a second device coupled to the first device through a plurality of electrical
4 conductors, wherein the inductive coupling coefficient of the first device is
5 adjusted to be substantially the same as the inductive coupling coefficient of the
6 second device.

7

8 **23.** An apparatus as recited in claim 22 wherein the first device includes
9 a plurality of differential drivers, wherein each differential driver is coupled to a
10 pair of electrical conductors.

11

12 **24.** An apparatus as recited in claim 22 wherein the second device
13 includes a plurality of differential receivers, wherein each differential receiver is
14 coupled to a pair of electrical conductors.

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16 **25.** An apparatus as recited in claim 22 further comprising a pair of
17 connectors coupled between the first device and the second device, wherein a
18 second plurality of electrical conductors are coupled between the pair of
19 connectors, and wherein alternating pairs of electrical conductors are reversed.

20

21 **26.** A method comprising:

22 generating a plurality of differential signals;
23 transmitting the plurality of differential signals through a first connector
24 and a second connector to a plurality of differential receivers;

1 reversing the polarity of alternating differential signals between the first
2 and second connectors; and

3 reversing the polarity of alternating differential signals between the second
4 connector and the plurality of differential receivers.

5
6 **27.** A method as recited in claim 26 wherein the first connector
7 generated inductive coupling noise as the differential signals are transmitted
8 through the first connector.

9
10 **28.** A method as recited in claim 26 wherein the second connector
11 generated inductive coupling noise opposite the noise generated by the first
12 connector as the differential signals are transmitted through the second connector.

13
14 **29.** A method as recited in claim 26 further including decoding the
15 plurality of differential signals.

16
17 **30.** A method as recited in claim 26 wherein a transmitter package
18 transmits the plurality of differential signals and a receiver package receives the
19 plurality of differential signals.

20
21 **31.** A method as recited in claim 30 further including modifying the
22 transmitter package such that the coupling coefficient of the transmitter package is
23 substantially the same as the receiver package.

1 **32.** A method comprising:

2 modifying a transmitter package such that the coupling coefficient of the
3 transmitter package is substantially the same as the coupling coefficient of a
4 receiver package;

5 transmitting multiple pairs of differential signals using the transmitter
6 package; and

7 receiving the multiple pairs of differential signals using the receiver
8 package.

9
10 **33.** A method as recited in claim 32 wherein the transmitter package
11 transmits multiple pairs of differential signals across a plurality of conductors.

12
13 **34.** A method as recited in claim 32 further comprising decoding the
14 multiple pairs of differential signals.

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16 **35.** A method as recited in claim 32 wherein the differential signals are
17 transmitted through a pair of connectors on a plurality of conductors, wherein
18 alternating pairs of conductors are reversed between the pair of connectors.